

## **ICT IN EDUCATION OF THE 21ST CENTURY CITIZEN. SIMILARITIES AND DIFFERENCES BETWEEN SPAIN AND SLOVENIA**

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**Abstract:** The paper focuses on ICT use in modern education. The characteristics of the society in which we are involved is given. The necessity of an open and flexible curriculum that answers the new demands of the moment is shown. The new role of school in building, modifying and reformulating students' knowledge, attitudes, feelings, beliefs and abilities in a critical and creative way is stressed. The questions which the paper addresses include: what new skills are required to the 21st century citizen? How are these e-skills evaluated and accredited? How does the growing importance of informal education affect to that training? How is digital literacy of the different members of society acquired?

**Key words:** education, ICT, ICT literacy.

### **Introduction**

Education of the knowledge society requires an open and flexible curriculum that answers the new demands of the moment. It is essential that this education meets conditions of creativity and educative innovations.

We are conscious that the role of school has changed in such a way that today's teaching no longer consists of teaching only or mainly decontextualized disciplinary contents but of defining and proposing different situations in which students can form and develop their competence or fundamental human qualities.

In other words, they can build, modify and reformulate their knowledge, attitudes, feelings, beliefs and abilities in a critical and creative way.

In this context in which we are, we can wonder: what new skills are required to the 21st century

citizen? How are these e-skills evaluated and accredited? How does the growing importance of informal education affect to that training? And how is digital literacy of the different members of society acquired?

### **The society in which we live**

The characteristics of the society in which we are involved, determines largely our way to face the world, as they pervade citizen mentality consciously or unconsciously.

It is, in short, a culture where what is superficial against what is deeper, and what is relative, ephemeral and immediate can acquire values in themselves.

We are in a context where the assurances of the past are no longer solid enough; Changes predominate. Relativism and uncertainty become prominent concepts and they involve us

in a continuum of uncertainty and constant decision-making situations.

The society in which we develop the education of competent citizens is called the "Information Society". Such society is immersed in ICT, in such a way everything changes so quickly in it that even the conception of what we understand by knowledge is something dynamic which is reconstructed constantly.

Area and Ribeiro [2] argue that culture is changing from being solid, full of certainty and with stable knowledge (which passes from one generation to another) to have "liquid knowledge" in these times in which we live. Here we need to build a digital identity as subjects, who are capable of surviving in the turbulent waters of information, which are transformed permanently.

### **Citizens' education for the 21<sup>st</sup> century**

Nowadays, the notion of knowledge has to do with groups of objective and impersonal ideas, which are used to do things with them. We could say that in "Society of Knowledge", knowledge is understood as merchandise, as objects that can be owned.

"However, the knowledge we need to live is that one which joins us and from which we are made of it. This knowledge that does not come from a simple appropriation of external knowledge, which has been constituted from the separation of the subject and life experience, but is the knowledge which has been worked, has taken shape, joined life and somebody who lives" [3].

Contreras [3] wonders if the meaning of citizenship education may get to constitute an experience, or something that affects, that involves subjectivity and that transforms. We think about whether a close relationship between education and subjectivity can be produced; if it is possible to make an experience from the opportunities of education. Precisely, because of being an experience is what makes it be formative. Being an experience leads you to other forms of knowledge and other relations with knowledge. Besides it also gives you the opportunity of thinking of other ways of relation with oneself as a source of information in itself.

But how or in which way do many of us get closer to use ICT?

In this context in which we are, are we fundamentally consumers or citizens? Before

the media messages, do we practice our communicative rights and do we participate in the construction of a free and public opinion? Or are we typical consumers who act within a traditional market of audiovisual products [6]?

### **How can we educate creative and innovative citizens with ICT?**

All our efforts focused on citizenship in general to achieve learning to use new technologies, is because we are evolving towards a society and an economy based on knowledge. Now, more than ever, the access to information and updated knowledge, together with motivation and skills to use these resources intelligently, are becoming the key to reinforcing competitiveness and improving employability and adaptability of workers. Digital competence linked to communicative competence in other languages are essential skills which are required to find a job. All of this must be taken into account because educators in general, are responsible for training the men and the women of the future.

Our world is characterized by being socially and politically complex. More than ever, people want to plan their own lives. They have to participate actively in society and must learn to live positively with cultural, ethnic and linguistic diversity.

Thus, Education in the broadest sense of the word is the key to learning and understanding how to face these challenges in such a way this current education is going to be linked to ICT.

### **The view of the development of the digital society in Slovenia**

The European Digital Agenda (EDA), one of the seven emblematic initiatives aimed at information and communication (ICT), has a key role in the efforts to achieve the strategic objectives of "the Europe 2020 strategy".

To take advantage of developmental opportunities, Slovenia should invest in digital growth and implement strategic orientation of innovative and intensive use of ICT, by guaranteeing in this way competitiveness of the Slovenian economy, equality of participation in the European digital market and lasting benefits in economic and social aspects.

But in Slovenia the problem is the lack of awareness of the importance of ICT and the lack

of investment in the development of the information society.

In recent years European competitors have invested more and more systematically. For the development of Slovenia it is essential to change the tactics as well as to provide more funds for the development so that they can accelerate the application of the European Digital Agenda with the aim of reducing the development gap among the most developed countries.

Slovenia is in the final stages of the development planning, in which the European structural funds will be distributed and therefore the possibility of the Information Society in the 2014-2020 period is also being described greatly in order to lead the development of the Ministry of Education, Science and Sports which includes the preparation of a national strategy in cybernetic security, the development of the strategy of electronic communications and the development of Slovenia's information society.

We as educators, have to guarantee a context of supportive development for the internet economy (ICT), what represents an increasingly large part of the gross domestic product, the effective connection to the internet and innovations, which are important for the growth of productivity and employment in all areas, which is particularly essential at the moment because we are seeking new ways to come out of the economic crisis.

In 2010, Slovenia set the goal of establishing a national complete system of education assisted by computer by 2013, with the purpose of providing an economic and sustainable growth, prosperity and quality of life of all citizens of the Republic of Slovenia. At the same time, it tried to be one of the most successful companies based on knowledge, constant innovation and quick improvement as well as to provide the necessary supports for all processes and contents in the acquisition and production of knowledge through information and communications technology.

As a part of this view the "e-Education Project" has been carried out within the Education and Sports Ministry of the Republic of Slovenia.

### **Accreditation of digital competence**

The new skills adapted to the digital age, called "e-competence" or electronic skills by Villanueva and Casas [14], are those which can

be understood as a by-product from the economic, technological and cultural changes that involve the uses of information in all its manifestations.

Why is it necessary to require action to the European Union in order to facilitate the measurement of digital skills?

We have to provide people with sufficient digital skills. And, to do so, firstly we have to develop appropriate indicators of digital competence and media literacy.

These indicators will help us measure and evaluate the achieved abilities in a comparative way in such a way we will be able to help in the development of new plans to warrant social cohesion and electronic inclusion in all over Europe.

In many countries, including Spain, an initiative is being carried out, the same as it has been made with the level of skills in a foreign language. A plan that invests in levelling the knowledge that people have in ICT. The aims of that accreditation of skills in information and communication technologies (ACTIC) are, among others: promoting the digital literacy of citizenship, fixing efficiency of the use of ICT as well as influencing positively on the quality of education in e-skills.

The characteristics of ACTIC are:

- They evaluate the digital skills of the person but not the skills of particular computer products (devices, software...).
- They incorporate the knowledge of essential concepts relative to information society, digital culture and good practices (focused on efficiency, ergonomics, context and respect for work and human rights of the others).
- They consider information and communication's technologies not strictly like technologies but from the point of view of communication, information and society into network.
- They understand the digital competence like generic abilities from which the person can learn constantly and can adapt herself to a changing context in a dynamic way.

With regard to this demanding context of an adequate level of media competence in citizens. We have to wonder if school is ready for that challenge and if educators can answer to this emerging demand. The positive answer would be accompanied, without doubt, by an adequate education of educators.

A recent study carried out in Cantabria [7], presents the opinions of the Pre-school or Primary level teachers (n=260), concerning the level of professional self-perceived skills and concerning permanent training. The results indicate that educators do not consider themselves competent at the professional level because they need to improve in some aspects where permanent education acquires a fundamental role. In general teachers are satisfied with the instruction that they receive. However it points out that it is sometimes difficult to apply in class the things learnt in formative actions.

In the same study it can be known what is the instruction that educators have received in their professional career and we have checked that more than half of the surveyed group has been guided through training related with digital competence or ICT, both office automation and the use of web 2.0 tools. But does all of that lead teachers to organize good situations of learning with ICT; the so-called "good practices"?

So far, we have seen how the irruption of the web 2.0 in school has generated [9] new debates on education, especially when it started to be questioned the teacher's own role, who was supposed to be a digital immigrant condemned to be understood, not without difficulty, with his native pupils. Now that distance begins to be relativised, it would be appropriate to focus on the educational paradigms, since most of the reflections on the "new" educational possibilities of the different modalities of e-learning, more or less based on social webs, would not be understood without a deep change in the educational paradigms, which is already being implemented for some time now.

### **The use of the Internet**

The use of information and communication technologies (ICT) has increased in households, in spite of the fact that the digital gap still remains between users and non-users. This can be attributed to a series of factors: lack of infrastructure (in particular in rural areas), lack of computer literacy skills and necessary

abilities to participate in information society or the lack of interest in what the information society can offer. Figure1 shows the use of ICT in Spanish households.

Contreras, Marfil and Ortega [4], have evaluated the level of media literacy of adults over 55 years of age in Andalusia Autonomous Community (Spain). They consider the opportunity this group has by participating in the social transformations through these media in such a way they move away from individual or social exclusion.

Analyzing the use of ICT products by people, in particular the use of the internet, according to age and gender, provides some information on the profile of the person who uses, the difference of genre and on the level of development in ICT in society.

The "2020 Europe strategy" proposes three priorities for the next few years: sustainable, intelligent and integrationist growth. Smart growth means development of an economy based on knowledge and innovation as drivers of the future growth.

This requires improving the quality of education, to consolidate the research results, to promote innovation and knowledge transfer in all the European Union and to achieve all the possible ICT advantages.

Perez Gómez [10], when proposes that society based on the knowledge economy, makes reference to the fact that we are increasingly focusing on services, ideas, information and communication.

Equally, he reflects on the fact we feel forced to innovate in the creation of products at high speed in order to gain competitive advantage.

Speed, intelligence, and innovation are more important than production. This knowledge economy requires a constant learning because success in this context depends on the capacity of updating in employees.

For the development of a digital society a digital agenda for Europe is proposed, which promotes, among other aims, the access to the internet and its use by all European citizens, especially through activities that support digital literacy and accessibility.

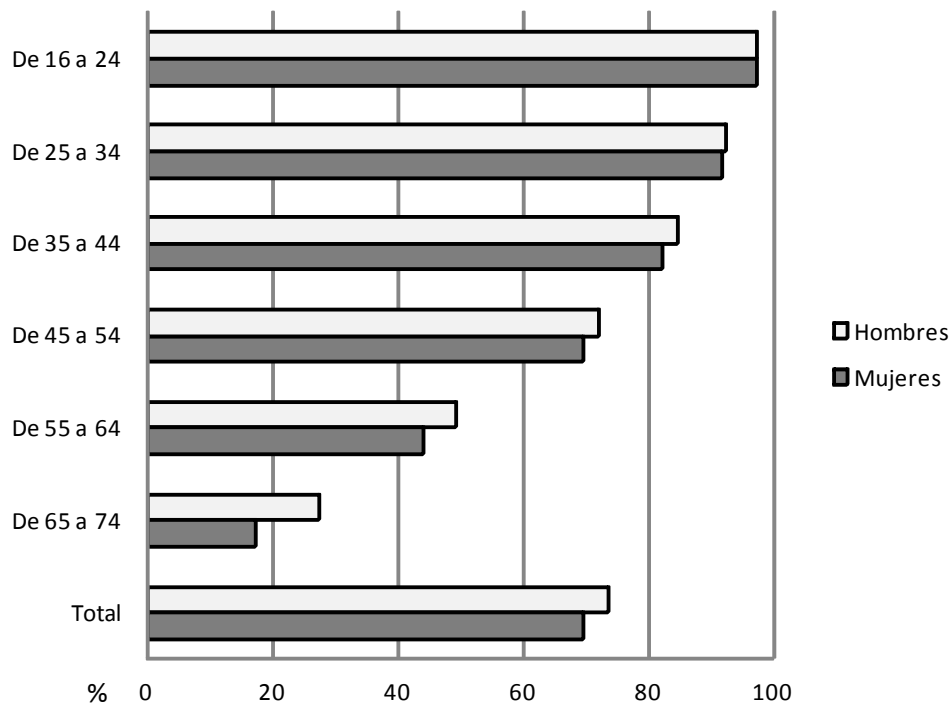


Fig. 1. The use of ICT in Spanish households (National Institute of Statistics of Spain 2013)

### Internet in Slovenia

With regard to the use of services of the information society, Slovenia, within the EU-27 framework, remained at around the EU average (in 2010, 70% of citizens were internet users). However, the group of retired and inactive group differs from the previous classification because they only represent a 24%, unlike in EU with 40%). Today, the same can be applied to the group of housewives and the most illiterate foreigners who are lagging behind too. A more detailed analysis shows that the development of specific e-skills in Slovenia would be well above the European Union average in almost all groups of age, except for those people over 55 years old (retired and inactive people) who are in the rearguard in all aspects.

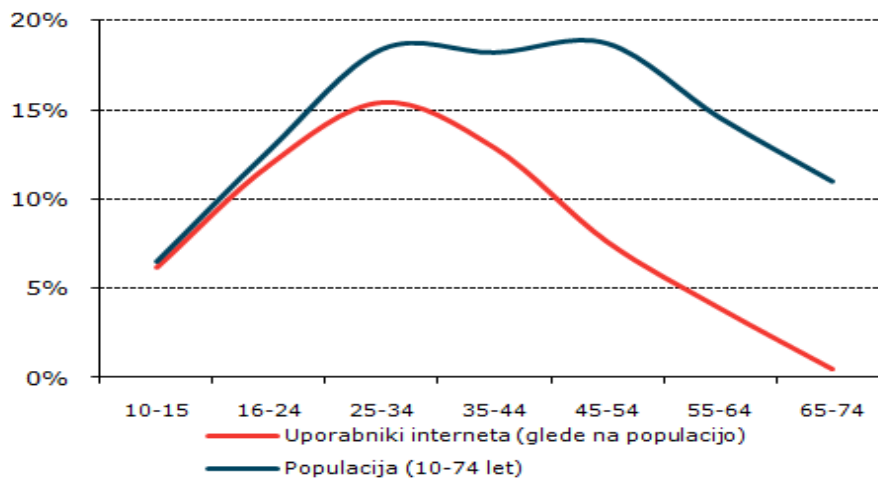
Speculating on the reasons... it may be due to that generation which in the last 10 or 20 years has retired earlier or has avoided the ICT introduction in work environment. So, the access to the ICT world after retirement is much more difficult.

Figure 2 shows the comparisons of the distribution of the Republic of Slovenia residents and users of the internet by age.

The comparisons also show that Slovenia is above the EU average in the achievement of e-competence agents (formal, informal and themselves), only after the educative organizations.

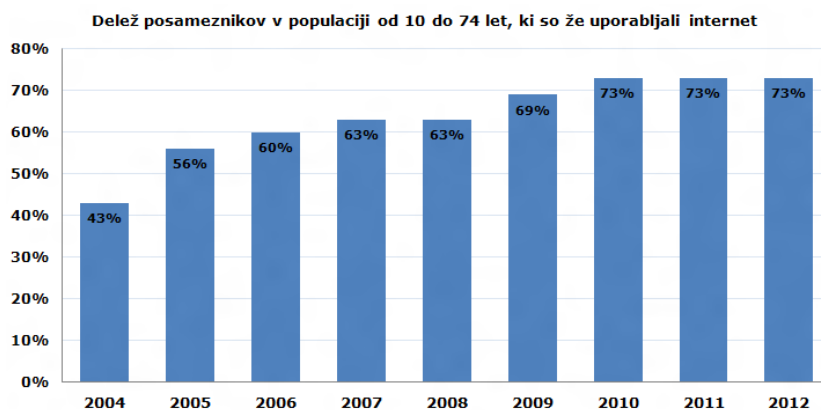
The exception is again the oldest and the least educational level in Slovenia. Therefore, the digital gap based on age and education is above the average [11]. Figure 3 shows the proportion of the 10-74 year old population which has never used the internet.

**Primerjava porazdelitev populacije prebivalcev RS (10-74 let) in uporabnikov interneta po starosti.**



Vir podatkov: SURS 2008

Fig. 2. Comparisons of the distribution of the Republic of Slovenia residents and users of the internet by age (the Statistic Office of the Republic of Slovenia, 2004-2012)



Vir: SURS, 2004-2012

Figure 3: The proportion of the 10-74 year old population which has never used the internet (the Statistic Office of the Republic of Slovenia, 2004-2012).

### Lines that follow the Spanish impact research in the field of ICT

If we want to know well the different conceptions of media competence [10], and their level of assimilation in Spanish citizenship, we have to mention the different research which is being carried out in our country today.

Thus, Gilster [8] already conceives the concept of digital literacy as the capacity to understand and use the sources of information when they appear through the computer. He points out that such competence has to do more with the

mastery of ideas rather than with keys. You do not have to acquire only the ability to find things but also the ability to use them in our lives. Another fundamental aspect is the evaluation of the double nature of internet, which enables the user to communicate himself, disseminate and publish as well as to access the information.

The expression "digital natives" was introduced in 2001 by Mark Prensky in his article "Digital Natives, Digital Immigrants" [12]. In this, he argues on the insurmountable division among young people who have grown with digital technology at their fingertips, while those other

people, older, who have turned into late users of digital technology. As we have seen before, the difference is sharp in the educational context, where we can find in the same classrooms digital natives (pupils) and digital immigrants (their teachers).

Thus, digital natives computerize information faster and enjoy multitasking and videogames, unlike digital immigrants who computerize such information in a slower way, work with difficulty in more than a task at the same time and do not appreciate these approaches to learning.

One of the most significant conclusions of the different research is that, in spite of the increase of availability of technological resources in schools, (computers, computers with internet connection, blackboards and digital projectors), the educational practice of educators in the classroom does not necessarily presuppose a substantive alteration of the model of traditional teaching. Almost two decades have passed of continuous efforts and projects launched institutionally by educational administrations in our country. Nevertheless, the presence and educational use of computers has not still been widely employed or has become an integrated practice in schools. The use of this type of resource with educative aims is still low, and lots of the teaching practices do not represent progress, innovation or improvement with regard to traditional practices.

The following details two important projects in which we participate, and which are being developed at the moment. They give us some idea of how is the research tendency developing in Spain in this field.

**1. Excellence Project of Junta de Andalusia (P10SEJ- 5823) "Audiovisual competence of Andalusian citizenship. Strategies of media literacy in society of digital leisure".**

It explains that the consumption of the media in the present society is undeniable. The hours in front of screens of all social sectors receive much of leisure time of citizens all over the world [1]. The audiovisual communication acquires a special transcendence in the context of digital society (web-society) in which we move, where the information and communication technologies permeate the entire daily sphere.

However, and given the massive presence of the media, citizens have had few training experiences of development of their audiovisual media skills. Educational centers, civic

associations and media communications have not encouraged the development of audiovisual competence as the vital axis for the promotion of a critical and "competent" citizenship.

This study, based on previous research work performed by the researchers of this project, tries to advance in the current conceptualization of the term "audiovisual competence" in the digital context. Besides it tries to project it in different areas of citizen intervention to detect, in a systemic and rigorous way, lacks and needs, to plan global strategies for the administration as well as to establish training programs for the different sectors concerned.

**2. Policies of "A computer per child" in Spain. Views and practices from the teaching staff before the 2.0 school program.**

**A comparative analysis among autonomous communities.**

Today, the Spanish school system, in the same way as it happens in other countries, both North American, European and Latin American (Portugal, Uruguay or Argentina), is currently in the process of the massive arrival of digital technologies at school through educational policies as the one represented by School 2.0 Program, in which each child and teacher is given a laptop, apart from multimedia projectors and digital blackboards to classrooms (fostered by Education Ministry in collaboration with different Governments of Autonomous Communities).

What effects and educational and organizational impact will this abundance of technologies have in regular classrooms? How much will the methodology in teaching in class and student's learning process change? How will the impact be on textbooks and traditional learning materials? What views and opinions has the teaching staff about this program? Are there any differences in these views and teaching practices according to the particular autonomous community? What synergy can be generated by the experience of School Program 2.0 in relation with other policies as "a computer per child" applied in different Latin American countries?

To answer these questions, the following project of research has been planned with the aims of:

- Identifying opinions, expectations and assessments of Primary, Secondary teachers about School Program 2.0 and the use of ICT in teaching in Spain.

- Exploring what type of teaching practices or learning activities are organized in the context of the classroom, by using these technological resources and by studying the impact on the teaching methodology.

- Analyzing comparatively these phenomena among some autonomous communities that participate in program 2.0 (Andaluzia, Asturias, Catalonia, Canary Islands, Extremadura, The Basque Country), and others that do not participate (Madrid and Valencia).

### **E-Education Project in Slovenia**

The Education and Sports Ministry proposes the project for the development, implementation, educational support and counseling to schools, e-learning material and teacher education in order to use ICT in teaching and learning for the 2008-2013 periods. Projects designed to improve the activities existing in the area:

- *Education of teachers and other professional staff.*

- *Educational support, counseling and technical assistance to educative institutions.*

*The E-Education Project merging two projects:*

#### ***E-competent teacher Program***

It offers a wide range of activities, among them preparation of new programs, conduction of seminars, e-education seminars, organization and implementation of SIRIKT international conference, coordination of suppliers of electronic learning material, invitations to smaller materials of e-learning and the continuous search and the integration of the new classmates who want to acquire new knowledge as well as understanding of contemporary approaches of teaching, learning and management school.

#### ***E-support Project***

If the educational institutions agree to it, have to be included in the E-support Project, to have support for solutions in lots of areas.

Both areas: education (e-competent teachers) and consulting services (e-support project) are carried out in the context of e-Centres in

educational institutions, in parallel connected with a common name of the e-Education Project [13].

### **Conclusions**

Education of the knowledge society requires an open and flexible curriculum that answers the new demands of the moment. It is essential that education meets conditions of creativity and educational innovations to achieve this goal.

Nowadays, digital illiteracy is a big problem. The impossibility of accessing or using ICT has become an obstacle for social integration and personal development. Digital illiterates lose social and economic opportunities and the easy access to public services that can save time and money. The importance of the dissemination of digital literacy cannot be clearer: those who do not have an adequate level of knowledge on ICT are disadvantaged in the labor market and have less access to information to participate in society as consumers or citizens.

The contexts of traditional learning focused on teachers are inadequate in promoting the educational aims of the most contemporary educational systems supported with ICT.

Answering the educational needs of present society means changing the baggage ancestral of a teaching basically focused on teachers to draw contexts of diversified teaching in which we must take seriously the role of pupils, the new way of building knowledge, the real possibility of carrying out continuous assessment and the most direct and interactive with the community.

The society in which we consider the education of competent citizens is immersed in ICT and everything changes so quickly that even the conception of what is understood by knowledge is something dynamic and which is reconstructed constantly.

And if knowledge is something different the concept and the definition of teaching-learning processes require an alternative conceptualization on the basis of the possibilities that ICT offer.

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